

Appl. No. 09/807,232

Reply to Office Action of June 13, 2003

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 20 (currently amended): An optical filter for producing a drop-and-continue function, comprising:

a wavelength-selective grating having temperature-dependent reflection and transmission characteristics, wherein a temperature dependent first signal portion of a signal having a particular wavelength is reflected by the grating and a temperature dependent second portion of the signal having a same wavelength as the first portion of the signal is transmitted for effecting a continue function of the optical filter; and

a device for adjusting a temperature of the grating for selectably determining a single range that is reflected by the grating, the single range defining the first signal portion, ~~wherein a first signal component to be branched off is reflected by the grating and a second signal component having a same wavelength as the first signal component is transmitted.~~

Claim 21 (original). An optical filter for producing a drop-and-continue function as claimed in claim 20, wherein filter action of the optical filter is lost upon a further temperature change.

Claim 22 (original). An optical filter for producing a drop-and-continue function as claimed in claim 20, wherein the grating includes at least two regions in an optically transparent material, each of the at least two regions having respectively different temperature-dependent refractive indices such that a difference between the refractive indices is at least approximately zero at one temperature within a temperature-controllable working range.

Claim 23 (original). An optical filter for producing a drop-and-continue function as claimed in claim 22, wherein the filter is designed in planar technology.

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Claim 24 (original). An optical filter for producing a drop-and-continue function as claimed in claim 20, wherein the filter is designed as a tunable band-stop filter.

Claim 25 (original). An optical filter for producing a drop-and-continue function as claimed in claim 24, wherein a bandwidth of the filter is tuned to a bandwidth of a transmission channel.

Claim 26 (original): An optical filter for producing a drop-and-continue function as claimed in claim 24, wherein a bandwidth of the filter is tuned to a bandwidth of a plurality of adjacent transmission channels.

Claim 27 (original): An optical filter for producing a drop-and-continue function as claimed in claim 24, wherein tuning is carried out by at least one of mechanical pressure, tension and bending.

Claim 28 (currently amended): An add-drop-continue module, comprising:
an insertion device;
a branching device for optical signals; and
an optical filter for producing a drop-and-continue function, the optical filter including a wavelength-selective grating having temperature-dependent reflection and transmission characteristics, wherein a temperature dependent first signal portion of a signal having a particular wavelength is reflected by the grating and a temperature dependent second portion of the signal having a same wavelength as the first portion of the signal is transmitted for effecting a continue function of the optical filter, and a device for adjusting a temperature of the grating for selectably determining a single range that is reflected by the grating, the single range defining the first signal portion such that a first signal component to be branched off is reflected by the grating and a second signal component having a same wavelength as the first signal component is transmitted, wherein the optical filter is connected between the branching device and the insertion device.

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Claim 29 (original): An add-drop-continue module as claimed in claim 28, further comprising:

a plurality of optical filters connected between the branching device and the insertion device.

Claim 30 (original): An add-drop-continue module as claimed in claim 28, wherein at least one of the branching device and the insertion device is a circulator.

Claim 31 (currently amended). An add-drop-continue device formed of a plurality of add-drop-continue modules connected in series, each of the add-drop-continue modules comprising:

an insertion device;

a branching device for optical signals; and

an optical filter for producing a drop-and-continue function, the optical filter including a wavelength-selective grating having temperature-dependent reflection and transmission characteristics, wherein a temperature dependent first signal portion of a signal having a particular wavelength is reflected by the grating and a temperature dependent second portion of the signal having a same wavelength as the first portion of the signal is transmitted for effecting a continue function of the optical filter, and a device for adjusting a temperature of the grating for selectably determining a single range that is reflected by the grating, the single range defining the first signal portion such that a first signal component to be branched off is reflected by the grating and a second signal component having a same wavelength as the first signal component is transmitted, wherein the optical filter is connected between the branching device and the insertion device.

Claim 32 (currently amended). A drop-and-continue module, comprising:

a branching device for optical signals; and

a tunable band-stop optical filter for producing a drop-and-continue function, the filter including a wavelength-selective grating having temperature-dependent reflection and transmission characteristics, wherein a temperature dependent first signal portion of a signal

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having a particular wavelength is reflected by the grating and a temperature dependent second portion of the signal having a same wavelength as the first portion of the signal is transmitted for effecting a continue function of the optical filter, and a device for adjusting a temperature of the grating for selectably determining a single range that is reflected by the grating, the single range defining the first signal portion such that a first signal component to be branched off is reflected by the grating and a second signal component having a same wavelength as the first signal component is transmitted, wherein the optical filter is connected downstream of the branching device.

Claim 33 (currently amended): A cross-connect module, comprising:

a plurality of inputs;

a plurality of outputs; and

at least one optical filter for producing a drop-and-continue function, the filter including a wavelength-selective grating having temperature-dependent reflection and transmission characteristics, wherein a temperature dependent first signal portion of a signal having a particular wavelength is reflected by the grating and a temperature dependent second portion of the signal having a same wavelength as the first portion of the signal is transmitted for effecting a continue function of the optical filter, and a device for adjusting a temperature of the grating for selectably determining a single range that is reflected by the grating, the single range defining the first signal portion such that a first signal component to be branched off is reflected by the grating and a second signal component having a same wavelength as the first signal component is transmitted.

Claim 34 (currently amended): A cross-connect module, comprising:

a plurality of inputs;

a plurality of outputs; and

at least one add-drop-continue module having an optical filter connected between a branching device for optical signals and an insertion device, wherein the optical filter produces a drop-and-continue function and includes a wavelength-selective grating having temperature-dependent reflection and transmission characteristics, wherein a temperature dependent first

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signal portion of a signal having a particular wavelength is reflected by the grating and a temperature dependent second portion of the signal having a same wavelength as the first portion of the signal is transmitted for effecting a continue function of the optical filter, and a device for adjusting a temperature of the grating for selectably determining a single range that is reflected by the grating, the single range defining the first signal portion such that a first signal component to be branched off is reflected by the grating and a second signal component having a same wavelength as the first signal component is transmitted.

Claim 35 (original): A cross-connect module as claimed in claim 33, wherein at least one of the branching device and the insertion device is a quad circulator.

Claim 36 (currently amended): A cross-connect device including a plurality of series-connected cross-connect modules, each of the cross-connect modules comprising:
a plurality of inputs;
a plurality of outputs; and
at least one optical filter for producing a drop-and-continue function, the filter including a wavelength-selective grating having temperature-dependent reflection and transmission characteristics, wherein a temperature dependent first signal portion of a signal having a particular wavelength is reflected by the grating and a temperature dependent second portion of the signal having a same wavelength as the first portion of the signal is transmitted for effecting a continue function of the optical filter, and a device for adjusting a temperature of the grating for selectably determining a single range that is reflected by the grating, the single range defining the first signal portion such that a first signal component to be branched off is reflected by the grating and a second signal component having a same wavelength as the first signal component is transmitted.

Claim 37 (currently amended): A method for tuning an optical filter, wherein the optical filter produces a drop-and-continue function, without interfering with transmitted signals, wherein the optical filter produces a drop and continue function and includes a wavelength-selective grating having temperature dependent reflection and transmission characteristics and a

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device for adjusting a temperature of the grating such that a first signal component to be branched off is reflected by the grating and a second signal component having a same wavelength as the first signal component is transmitted, the method comprising the steps of:

providing the optical filter with a wavelength-selective grating having temperature-dependent reflection and transmission characteristics, wherein a temperature dependent first signal portion of a signal having a particular wavelength is reflected by the grating and a temperature dependent second portion of the signal having a wavelength which is the same as the wavelength of the first portion of the signal is transmitted to effect a continue function of the optical filter;

providing the optical filter with a device for adjusting a temperature of the grating for selectively determining a single range that is reflected by the grating, the single range defining the first signal portion;

adjusting the optical filter such that, as a result of a first temperature change, the optical filter loses its filter characteristic;

tuning the optical filter to a predetermined new wavelength; and

subsequently adjusting the optical filter, as a result of a further temperature change, such that the optical filter regains its filter characteristic at a newly adjusted wavelength.

Claim 38 (currently amended): A method of using an optical filter to assist in the production of a circuit having at least one of add-and-drop functionality, drop-and-continue functionality, multicast functionality, dual-homing functionality and cross-connect functionality, the method comprising the steps of:

providing an optical filter for producing a drop-and-continue function;

providing a wavelength-selective grating within the optical filter having temperature-dependent reflection and transmission characteristics, wherein a temperature dependent first signal portion of a signal having a particular wavelength is reflected by the grating and a temperature dependent second portion of the signal having a same wavelength as the first portion of the signal is transmitted to effect a continue function of the optical filter ; and

providing a device in the optical filter for adjusting a temperature of the grating, for selectably determining a single range that is reflected by the grating, the single range defining the